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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/639,396	08/15/2000	Philippe Daniel	M-8390US	1471

33031 7590 04/22/2004

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EXAMINER

MOORE JR, MICHAEL J

ART UNIT	PAPER NUMBER
2666	

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/639,396

Applicant(s)

DANIEL ET AL.

Examiner

Michael J. Moore, Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2000.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 5-9, 13-17 and 20-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-9, 13-17 and 20-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. Claim **20** is objected to because of the following informalities: On line 3, the word "a" is not needed between the words "to" and "one". Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.
2. Claims **7-9, 22, 23, 27, 28, 32, and 33** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim **7** recites the limitation "the K-Bytes" in line 2. There is insufficient antecedent basis for this limitation in the claim.
4. Claim **8** recites the limitation "the Automatic Protection Switching (APS) protocol" in line 2. There is insufficient antecedent basis for this limitation in the claim.
5. Claim **9** is dependent upon claim **4**, which is now cancelled. Therefore the limitation "said plurality of ring networks" lacks antecedent basis. It is believed that this claim should now depend on claim **5**.
6. Claim **22** recites the limitation "said K-Bytes" in line 2. There is insufficient antecedent basis for this limitation in the claim.
7. Claim **23** recites the limitation "said Automatic Protection Switching (APS) protocol" in lines 3 and 4. There is insufficient antecedent basis for this limitation in the claim.

8. Claim **27** recites the limitation "said K-Bytes" in line 2. There is insufficient antecedent basis for this limitation in the claim.
9. Claim **28** recites the limitation "said Automatic Protection Switching (APS) protocol" in line 3. There is insufficient antecedent basis for this limitation in the claim.
10. Claim **32** recites the limitation "said K-Bytes" in line 2. There is insufficient antecedent basis for this limitation in the claim.
11. Claim **33** recites the limitation "said Automatic Protection Switching (APS) protocol" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims **5, 13, 20, 25, and 30** are rejected under 35 U.S.C. 102(e) as being anticipated by Madonna (U.S. 6,002,683). The Madonna reference discloses all of the limitations of the listed claims for the reasoning that follows.

Regarding claim **5**, "receiving frames from a plurality of ring networks at a single network element" is anticipated by the programmable switching node bridge 230 of Figure 9A. This node bridge 230 is operable to exchange information bi-directionally

between the shown ring networks as stated in column 22, lines 52-54. "Monitoring said frames at a single network element for a condition indicative of a failure in one of said plurality of ring networks", "detecting a failure in one of said plurality of ring networks, wherein said detecting said failure comprises reading a portion of a frame", "determining which ring network among said plurality of ring networks is failing" and "rerouting frames of the failing ring network are all anticipated by the programmable switching node failure illustration in Figures 6A and 6B as well as column 21 lines 19-43.

It is stated in the example that either node 6f has failed or a portion of the inter-nodal network 12 has failed (a malfunction was detected). When this happens, nodes 6e and 6g, which are adjacent to the failed node, begin to operate in a "loopback" mode where packet traffic is rerouted. This example is not specifically in reference to programmable switching node bridge 230. However, it is stated in column 22, lines 50-66 that bridge 230 appears as a node on both inter-nodal networks and includes essentially the same components as a programmable switching node, and is thus capable of the same failure detection and protection switching practices as any other node on either ring network.

Regarding claim 13, "a computer-readable medium comprising: computer-readable program code for causing a network element to receive a frame from a first ring network and/or a second network, computer-readable program code for causing said network element to detect a failure condition in said first ring network, computer-readable program code for informing a program designated to support said first ring network of said failure condition, and computer-readable program code for processing

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said failure condition” are all anticipated by the programmable switching node failure illustration in Figures 6A and 6B as well as column 21 lines 19-43.

It is stated in the example that either node 6f has failed or a portion of the inter-nodal network 12 has failed (a malfunction was detected). When this happens, nodes 6e and 6g, which are adjacent to the failed node, begin to operate in a “loopback” mode where packet traffic is rerouted. This example is not specifically in reference to programmable switching node bridge 230. However, it is stated in column 22, lines 50-66 that bridge 230 appears as a node on both inter-nodal networks and includes essentially the same components as a programmable switching node, and is thus capable of the same failure detection and protection switching practices as any other node on either ring network. This bridge 230 is also programmable and contains transmitter and receiver interfaces, which contain memory (computer-readable medium) for storing packet-addressing information.

Regarding claim 20, “a network element comprising: a processor and a plurality of network interfaces, each of said network interfaces coupled to a one of a plurality of ring networks and to said processor” is anticipated by the TX and RCV elements 70a, 84a, 70b and 84b (plurality of network interfaces) of Figure 3A as well as the packet handling circuit 78a (processor) of Figure 3A. “Computer-readable medium coupled to said processor and computer code, encoded in said computer readable medium, configured to cause said processor to: receive frames from said plurality of ring networks, monitor said frames for a condition indicative of a failure in one of said plurality of ring networks, detect a failure in one of said plurality of ring networks,

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wherein said detecting said failure comprises reading a portion of a frame, determine which ring network among said plurality of ring networks is failing, and rerouting frames of said failing ring network" are all anticipated by the memory (computer-readable medium) within TX and RCV elements, which store packet-addressing information (computer code) for providing instructions to the packet handling circuit (processor) within each programmable switching node.

Regarding claim **25**, "a computer program product comprising: a first set of instructions executable on a computer system, configured to cause a single network element to receive frames from a plurality of ring networks" is anticipated by the programmable switching node bridge 230 of Figure 9A. This node bridge 230 is operable to exchange information bi-directionally between the shown ring networks as stated in column 22, lines 52-54. Instructions for monitoring failure conditions, failure detection by reading a portion of a frame, determination of which ring has failed, rerouting of frames, and a computer-readable media for storing the computer program product are all anticipated by the programmable switching node failure illustration in Figures 6A and 6B as well as column 21 lines 19-43.

It is stated in the example that either node 6f has failed or a portion of the inter-nodal network 12 has failed (a malfunction was detected). When this happens, nodes 6e and 6g, which are adjacent to the failed node, begin to operate in a "loopback" mode where packet traffic is rerouted. This example is not specifically in reference to programmable switching node bridge 230. However, it is stated in column 22, lines 50-66 that bridge 230 appears as a node on both inter-nodal networks and includes

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essentially the same components as a programmable switching node, and is thus capable of the same failure detection and protection switching practices as any other node on either ring network. This bridge 230 is also programmable and contains transmitter and receiver interfaces, which contain memory (computer-readable media) for storing packet-addressing information (instructions).

Regarding claim 30, "a network element comprising: means for receiving frames from a plurality of ring networks at said network element" is anticipated by the programmable switching node bridge 230 of Figure 9A. This node bridge 230 is operable to exchange information bi-directionally between the shown ring networks as stated in column 22, lines 52-54. Means for monitoring frames for failure indications, means for failure detection by reading a portion of a frame, means for determining which ring network has failed, and means for rerouting are all anticipated by the programmable switching node failure illustration in Figures 6A and 6B as well as column 21 lines 19-43.

It is stated in the example that either node 6f has failed or a portion of the inter-nodal network 12 has failed (a malfunction was detected). When this happens, nodes 6e and 6g, which are adjacent to the failed node, begin to operate in a "loopback" mode where packet traffic is rerouted. This example is not specifically in reference to programmable switching node bridge 230. However, it is stated in column 22, lines 50-66 that bridge 230 appears as a node on both inter-nodal networks and includes essentially the same components as a programmable switching node, and is thus



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capable of the same failure detection and protection switching practices as any other node on either ring network.

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims **6-8, 21-23, 26-28, and 31-33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Madonna (U.S. 6,002,683) in view of Wu (U.S. 5,442,623).

Regarding claims **6, 7, 21, 22, 26, 27, 31, and 32**, Madonna fails to disclose "wherein said portion of a frame is an overhead section of a Synchronous Optical Network (SONET) Synchronous Transport Signal (STS). However, Wu teaches in column 4, lines 9-29 how in one SONET protection switching protocol (ANSI T1X1.5 Standard), the K1 and K2 overhead bytes are used for relaying protection switching

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messages in the event of a network failure. At the time of the invention, it would have been obvious to a person of ordinary skill in the art given these references to make use of K1 and K2 overhead bytes of a SONET STS in order to provide automatic protection switching so that a network failure can be avoided. This motivation is disclosed in column 4, lines 9-11 of the Wu reference.

Regarding claims **8, 23, 28, and 33**, Madonna fails to disclose where the act of rerouting frames is in accordance with the Automatic Protection Switching (APS) protocol. However, Wu teaches in column 4, lines 9-29 that a self-healing network indicates a request for a certain type of protection switching by making use of the K1 and K2 overhead bytes of a SONET STS. This protection switching (loopback, span, etc.) conforms to the Automatic Protection Switching protocol. Therefore, the method of claim **7** implies that the APS protocol is being complied with. At the time of the invention, it would have been obvious to a person of ordinary skill in the art given these references to make use of K1 and K2 overhead bytes of a SONET STS in order to provide automatic protection switching so that a network failure can be avoided. This motivation is disclosed in column 4, lines 9-11 of the Wu reference.

17. Claims **9, 14, 15, 16, and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Madonna (U.S. 6,002,683) in view of Nathan et al. (U.S. 6,295,146).

Regarding claim **9, 14, 15, and 17**, Madonna does not explicitly disclose "wherein said plurality of ring networks are Synchronous Optical Network (SONET) Bi-directional Line Switched Ring (BLSR) networks. Madonna does state that the described inter-nodal network may also be implemented with a variety of other types of

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communications networks such as SONET in column 6, lines 52-57. However, Nathan et al. discloses a two-ring SONET network that transmits frames bi-directionally with a network element coupling the two rings. This network element along with the other nodes use line switching to combat ring network failures and reroute SONET frames. This figure constitutes a plurality of ring networks utilizing SONET BLSR methods. At the time of the invention it would have been obvious to someone of ordinary skill in the art given these references to implement the inter-nodal network of Madonna using SONET BLSR methods shown in the Nathan et al. reference. A motivation for doing so would be to allow for the inter-nodal network of Madonna to be geographically distributed over large areas as stated in column 6, lines 55-57 of Madonna.

Regarding claim **16**, Madonna discloses a RCV1 element 70a (first line interface) and a TX2 element 84b (second line interface) of Figure 3A. RCV1 70a is coupled to a first ring network while TX2 84b is coupled to a second ring network. Madonna fails to disclose "a cross-connect device of said network element, said cross-connect device including a computer program for monitoring information from said first ring network and said second ring network; and wherein said computer program monitors said information for conditions indicative of a failure in said first ring network or said second ring network." However, Nathan et al. discloses optical switching units 302 and 307 of Figure 3 each composed of an optical cross-connect switch and an optical cross-connect controller. These optical switching units receive alarm failure indications from coupled add-drop multiplexer elements and reroutes traffic accordingly. At the time of the invention it would have been obvious to someone of ordinary skill in the art given

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these references to implement a cross-connect device of Nathan et al. with the programmable switching node of Madonna. A motivation for doing so would be to provide a way to switch optical paths between a plurality of optical ports as stated in column 4, lines 48-49.

18. Claims **24, 29, and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Madonna (U.S. 6,002,683) in view of Wu (U.S. 5,442,623) and in further view of Nathan et al. (U.S. 6,295,146).

Regarding claims **24, 29, and 34**, Madonna in view of Wu does not disclose "wherein said plurality of ring networks are Synchronous Optical Network (SONET) Bi-directional Line Switched Ring (BLSR) networks. However, Nathan et al. discloses a two-ring SONET network that transmits frames bi-directionally with a network element coupling the two rings. This network element along with the other nodes use line switching to combat ring network failures and reroute SONET frames. This figure constitutes a plurality of ring networks utilizing SONET BLSR methods. At the time of the invention it would have been obvious to someone of ordinary skill in the art given these references to implement the inter-nodal network of Madonna in view of Wu using SONET BLSR methods shown in the Nathan et al. reference. A motivation for doing so would be to allow for the inter-nodal network of Madonna to be geographically distributed over large areas as stated in column 6, lines 55-57 of Madonna.

### ***Response to Arguments***

19. Applicant's arguments with respect to claims **13 and 16** have been considered but are moot in view of the new ground(s) of rejection provided above.

**Conclusion**

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Goode et al. (U.S. 6,639,896), Neuendorff et al. (U.S. 6,657,969), Taniguchi (U.S. 5,661,720), Lecoutre et al. (U.S. 6,532,238), Chi et al. (US 2003/0179702), and Kremer (U.S. 5,440,540) are all references that contain material pertinent to this application.

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Moore, Jr. whose telephone number is (703) 305-8703. The examiner can normally be reached on Monday-Friday (8:30am - 5:00pm).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached at (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael J. Moore, Jr.  
Examiner  
Art Unit 2666

mjm MM

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